ABSTRACT

An orthogonal electrical coupling relies on electromagnetic coupling for the inner connection, as opposed to direct contact between conductors. A conductor on one of the lines is connected to a ground plane which is adjacent to a resonant slot. Microwave energy is coupled to the slot, thereby exciting the slot. A second conductor is on the opposite side of the ground plane from the first conductor. Microwave energy from the excited resonant slot passes to the second conductor, thereby allowing contactless interconnection between the first conductor and the second conductor. The coupling may emphasize certain modes of propagation relative to other possible modes of propagation. Specifically, the ground plane and slot may be enclosed in a cavity of a size such that the cavity does not support any natural mode propagation inside the cavity. Instead, the coupling may have a cavity in which a transverse electromagnetic (TEM) mode is propagated.

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